APPENDIX

TO

THE FORMULARY

FOR THE

PREPARATION AND MODE OF EMPLOYING

SEVERAL

NEW REMEDIES;

CONTAINING THE

PHARMACEUTICAL AND THERAPEUTICAL PROPERTIES

OF THE HYDRIODATES OF POTASS AND SODA, THE IODURET OF MERCURY, THE CYANURETS OF POTASSIUM AND ZINC, THE OIL OF THE CROTON TIGLIUM, PIPERINE, JALAPINE, ETC.

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APPENDIX

TO

THE FORMULARY, &c.

MORPHINA.—(P. 3.)

M. J. Fenuglio has recently published some remarks on the action of the meconic acid and its combinations on man and other animals, from which it would seem that it does not possess that febrifuge property which has by some been ascribed to it. — (*Annal. Univers. di Medicin.*, Oct. and Nov. 1823.)

ULTIMATE ELEMENTS OF MORPHINE.—(P. 8.)

M. Bussy, chemical operator at the *Ecole de Pharmacie*, has given a good analysis of morphine. He found that it contained azote, which had not been suspected by Thomson, and a much larger proportion of carbon. MM. Dumas

MODE OF EMPLOYING THE SALTS OF MORPHINE. — (P. 14.)

M. Magendie affirms, that he has employed the salts of morphine both in hospital and private practice to the extent of four grains (3 24 gr. troy) a day, without any sort of inconvenience being induced. It is necessary, he observes, to abstract considerably from the ideas which were at first formed respecting the activity of this medicine, and especially to avoid considering it as a very subtile poison; on the contrary, it is now indubitable, he asserts, that, in order to become deleterious, it must be administered in a high dose, and not excite vomiting. The latter circumstance must be of very rare occurrence.

NARCOTINA.—(P. 15.)

CHEMICAL PROPERTIES OF NARCOTINE.—(P. 16.)

MM. DUMAS and Pelletier have found narcotine to be composed of—

Carbon	68.88
Azote	7.21
Hydrogen	5.91
Oxygen	18.00
Narcotine	100.

MODE OF PREPARING THE EXTRACT OF OPIUM DEPRIVED OF NARCOTINE.—(P. 20.)

M. Dublanc, jun., feeling convinced, from repeated experiments, that opium treated in the cold with ether until the ether had no longer any action upon it, afforded an extract which, when again treated with heat by the same agent, still gave sensible traces of narcotine, has modified M. Robiquet's process as follows:—

Take of extract of opium, prepared in the cold, 9 oz. 5 drs. 10 grs.; dissolve it in 4 oz. 6 drs. of distilled water: pour this solution into a retort, and add 5 lbs. 4 oz. 2 drs. of pure

ether: a gentle heat must now be applied, and after about a fourth part of the ether has passed over, the ether which swims above the extract in the retort must be speedily poured off. The ether obtained by the distillation serves to wash the extract whilst yet warm; and after these processes it should be evaporated to a proper consistence. For fear that the ether poured off from the extract after distillation may have left in the mass a little narcotine, the extract must be dissolved in distilled water, and filtered: on the filter some small crystals of narcotine will be found mixed with an extractive pulverulent matter, insoluble in the small quantity of water employed for treating the extract: evaporate the solution until the extract assumes its ordinary form. When thus obtained, the extract of opium may be regarded as entirely deprived of narcotine. It powerfully attracts humidity from the atmosphere, and readily dissolves in water, which it colours much less than the common extract, without depositing in it any extraneous matter. A digester may also be used for obtaining by ether the pure extract of opium.

The above extract may be employed like the aqueous extract of the shops.

IODINA. — (P. 23.)

PREPARATION OF THE HYDRIODATES OF POTASS AND SODA. — (P. 27.)

MM. Baup [b] and Caillot,[c] the former a pharmacien at Vévay, the latter at Paris, have each invented a similar process for obtaining the hydriodate of potass, by means of the hydriodate of iron, of which the following is a description : —

Introduce into a flask or matrass one part of iodine, and three or four of water ; add by degrees and at intervals an excess of pure iron filings — a half part for example. The combination takes place immediately ; much heat is disengaged, the iodine disappears, and the liquid becomes of a deep red colour. During this brisk reaction an iodurettted hydriodate is formed : by heating it slightly, and agitating it for a moment whilst still hot, it is converted into simple hydriodate of iron. The action is known to be terminated by the almost entire decoloration of the liquid ; but more certainly, when white paper is no longer tinged red by it.

[b] *Naturwiz. Anzeigir*, 1821.

[c] *Journal de Pharmacie*, Octobre, 1822.

The solution must be filtered, diluted with some parts of water, and raised, in a sand bath, in an evaporating dish or matrass, to a point near that of ebullition; the iron should then be precipitated by means of the pure carbonate or subcarbonate of potass. This part of the operation requires some attention, in order that an excess of potass be not added; which might, however, be separated by repeated crystallization, or be saturated with the hydriodic acid. After having filtered in order to separate the ferruginous deposit, and well washed it, we must proceed to the evaporation of the filtered liquor, beginning with the washings. The salt may be made to crystallize by refrigeration or evaporation: in the latter case, the concentrated solution of the hydriodate of potass should be placed, not in a stove, because the salt would mount up the sides of the vessel and subtract all the liquid from it, but upon a very gentle fire, where the edges of the vessel, being less heated than the bottom, may condense a little of the vapour which arises, and thus prevent the ascension of the salt. By degrees the crystals are deposited: when they fill nearly the whole of the space occupied by the liquid, it must be suffered to cool, and the mother-waters be drained off and again evaporated, to extract more salt from them: finally, the crystals must be entirely dried in a stove or on the

fire, where they undergo a slight decrepitation.

In order to procure this salt perfectly pure, it should be subjected to fresh crystallization, especially if potass has been added in excess. If the iron employed contained a little copper, it will be sufficient to pass into the mother-waters some bubbles of sulphuretted hydrogen, and to filter before proceeding to fresh crystallizations.

CHEMICAL PROPERTIES OF THE HYDRIODATE OF POTASS.

The hydriodate of potass (ioduret of potassium) commonly crystallizes in cubes; but by careful evaporation the crystals assume a hopper-shape, more or less open. These crystals are almost always opaque or of a milky white. By slow cooling, M. Baup obtained from a slightly concentrated solution long quadrangular prisms, and also short prisms terminated by a pyramid with four facets.

The solubility of the ioduret of potassium at 18° Therm. Centigr. (65° Fah.) has been determined by M. Guy-Lussac: 100 parts of water at that temperature dissolve 143 of the ioduret. M. Baup found that the same quantity of water at 12°.5 (55° Fah.) dissolved 136, and at 16° (61° Fah.) 141 parts.

Five parts of alcohol S. G. .85 at 12°.5 (55° Fah.), and 39 to 40 parts of absolute alcohol at the same temperature, are required to dissolve one of the ioduret. It dissolves more readily in both one and the other by the aid of heat.

POTASSÆ HYDRIODAS IODURETA.

Ioduretted Hydriodate of Potass.

M. Baup found that the *ioduretted* hydriodates are combinations of fixed and determinate proportions; so that the solution of hydriodate of soda or of potass, which is known to be capable of still dissolving iodine, can, under any circumstance, combine with a quantity of iodine equal to that which itself contains (nearly three-fourths of its weight, or as 76·5 to 100).

The *ioduretted* hydriodate of potass only has been yet employed in medicine, and commonly in solution in water: the simple hydriodate is, however, preferable.

CASES IN WHICH THE PREPARATIONS OF IODINE MAY BE EMPLOYED.—(P. 32.)

M. Brera has shewn, by cases, the beneficial properties of iodine in suppressed menstruation: his observations have also been con-

firmed by other physicians. M. Brera appears to have administered the preparations of iodine in a greater variety of diseases than M. Coindet. In addition to cases of bronchocele and menstrual suppression cured by iodine, he has given several histories of glandular enlargements, tabes mesenterica, chronic dysentery, hæmoptysis succeeding to suppression of the menses, phthisis laryngea, leucorrhœa, and syphilitic swellings, the cure of which he attributes to that medicine. M. Magendie, however, considers it not improbable that M. Brera frequently associates other preparations with those of iodine, whilst he ascribes the whole efficacy to the latter.

Iodine has also been lately used for the treatment of syphilitic buboes and for gonorrhœa.

M. Magendie considers that the accidents resulting from the administration of iodine in other countries than France, may have arisen from no allowance having been made for the difference between the *poids de marc*, which is used in that country; the Nuremberg, which is used in Switzerland and Germany; and the Troy, in England: a difference of one-fifth in the strength being the result, if the two last are used instead of the first. M. Magendie cannot, however, have seen the English translation of his work, or he would have found that the

difference between the weights has been clearly appreciated.

Mode of prescribing Iodine. — *(p. 35.)*

ÆTHER SULPHURICUS IODURETUS.

Iodurетted Sulphuric Ether.

Take of

Sulphuric Ether.....1 gros (59 gr. troy.)
Pure Iodine.....6 grains (4.92 gr. troy.)

Thirty drops contain one grain (.82 gr. troy) of iodine. Patients do not easily bear more than ten drops at once.

HYDRARGYRI IODURETUM. — (P. 41.)

Ioduret of Mercury.

The ioduret of mercury has been recently employed against syphilis; as, however, the medicinal virtues of this new compound have not yet been clearly established, we shall merely indicate its mode of preparation and the different forms under which it has been administered.

MODE OF PREPARING THE PROTO-IODURET OF MERCURY.

Take 100 parts of the nitrate of the protoxide of mercury crystallized, and dissolve it in 400 parts of water. Pour into the filtered liquid a solution of hydriodate of potass, and add it until a precipitate is no longer thrown down. A greenish-yellow precipitate is thus obtained, which is pulverulent: throw it upon a filter: wash it carefully with distilled water, until the fluid which passes through no longer yields a black precipitate by potass: dry it, and preserve it in a vessel closed and kept from the rays of light. According to Thomson, 162 parts of the proto-ioduret contain 62 of iodine and 100 of mercury, or 2.5 of mercury and 1.56 of iodine.

MODE OF PREPARING THE DEUTO-IODURET.

The deuto-ioduret is prepared with the deuto-chloruret of mercury (corrosive sublimate); 70 parts of this chloruret to 100 parts of the ioduret of potassium. Each compound being dissolved separately in a sufficient quantity of distilled water, filter the two solutions, and unite them in small portions: a red powder is immediately precipitated, which must be

collected upon a filter and washed with distilled water with the greatest care, until the fluid which passes through the filter has no more taste.

The precipitate must be dried, reduced into powder, and kept in a bottle *à l'abri* from the rays of light. The deuto-ioduret contains 2.5 of mercury and 3.12 of iodine.

Mode of employing the Ioduret of Mercury.

UNGUENTUM HYDRARGYRI PROTO-IODURETI.

Ointment of Proto-Ioduret of Mercury.

Take of

Proto-Ioduret of Mercury . . . 20 grains (16.40 gr. troy.)
Hog's Lard . . . . . 1½ oz. (11 dr. 48 gr. troy.)
Mix.

This ointment has been extolled in the treatment of inveterate venereal ulcers, of which it is said to accelerate the cicatrization.

UNGUENTUM HYDRARGYRI DEUTO-IODURETI.

Ointment of Deuto-Ioduret of Mercury.

Take of

Deuto-Ioduret of Mercury . . 20 grains (16.40 gr. troy.)
Hog's Lard . . . . . 1½ oz. (11 dr. 48 gr. troy.)

This ointment, which is more active than the

preceding, is employed in the same manner: a very small quantity only should be put upon the lint applied to the ulcers.

TINCTURA HYDRARGYRI DEUTO-IODURETI.

Tincture of Deuto-Ioduret of Mercury.

Take of

Deuto-Ioduret of Mercury··20 grains (16.4 gr. troy.)
Alcohol at 36° (.837)·····1½ oz. (11 dr. 48 gr. troy.)
Mix.

Twenty-six drops of this solution nearly correspond with an eighth of a grain of the deuto-ioduret of mercury: it may be given in the dose of 10, 15, or 20 drops, in a glassful of distilled water, common water readily decomposing it.

It has been said to have succeeded in scrofulous affections complicated with syphilis.

ETHER SULPHURICUS CUM HYDRARGYRI PROTO-IODURETO VEL DEUTO-IODURETO.

Sulphuric Ether, with Proto—or Deuto-Ioduret of Mercury.

Take of

Sulphuric Ether·····1½ oz. (11 dr. 48 gr. troy.)
Proto—or Deuto-Ioduret of
Mercury·····20 gr. (16.48 gr. troy.)

This preparation, which is more active than the preceding, should be given in smaller doses.

PILULÆ HYDRARGYRI PROTO-IODURETI VEL DEUTO-IODURETI.

Pills of Proto—or Deuto-Ioduret of Mercury.

Take of

Proto—or Deuto-Ioduret of Mercury 1 gr. (.82 gr. troy.)
Extract of Juniper ..... 12 gr. (9.84 gr. troy.
Liquorice Powder ..... q. s.

To make eight pills, of which two may be taken first thing in the morning and two in the evening. The dose may be afterwards carried as far as four in the morning and four in the evening.

EXTRACTUM NUCIS VOMICÆ RESINOSUM. — (P. 42.)

CASES IN WHICH THE ALCOHOLIC EXTRACT OF THE NUX VOMICA MAY BE EMPLOYED. — (P. 47.)

M. MAGENDIE has recently employed this medicine with advantage in several cases of partial atrophy of the upper and lower limbs.

TINCTURÆ NUCIS VOMICÆ. — (P. 49.)

This tincture may also be employed as an embrocation to any part in a state of paralysis or atrophy. It is now employed in this manner amongst the Italians.

STRYCHNINA. — (P. 50.)

MODE OF PREPARING STRYCHNINE. — (P. 51.)

When strychnine is prepared after the method detailed at p. 51, it is *not* "obtained in a state of purity," but consists of a mixture of strychnine, brucine, and colouring matter. By macerating the whole in a small quantity of weak alcohol, the brucine and colouring matter are speedily dissolved, and the strychnine remains in a pulverulent form: this must be treated with boiling rectified alcohol, which dissolves it, and the alcohol be evaporated, when the strychnine will crystallize. A small quantity of the alcoholic mother-water should be left to take up any remains of brucine. On repeating the crystallization of the strychnine, it is obtained still more pure.

It is, however, almost impossible, with the nux vomica, to have a strychnine incapable of being reddened by the nitric acid, which is the characteristic mark of its purity. The strychnine obtained from St. Ignatius's bean approaches this result, but it is easily obtainable from the *upas tieuté*.

CHEMICAL PROPERTIES OF STRYCHNINE.—(P. 55.)

According to MM. Dumas and Pelletier, the mean between two analyses of strychnine gave in one hundred parts —

Carbon	78.22
Azote	8.92
Hydrogen	6.54
Oxygen	6.38
Strychnine	100.06

EMETINA PURIFICATA.—(P. 68.)

CHEMICAL PROPERTIES OF PURE EMETINE.—(P. 69.)

From the circumstance of pure emetine being precipitable from its combinations by the gall-nut, the latter would be the most proper antidote in cases of poisoning by the former.

MM. Dumas and Pelletier have found the composition of pure emetine obtained from the *cæphalis emetica* to be as follows:—

Carbon	64.57
Azote	4.
Hydrogen	7.77
Oxygen	22.95
Emetine	99.29

CINCHONINA — (P. 74.)

CHEMICAL PROPERTIES OF CINCHONINE. — (P. 79.)

MM. Dumas and Pelletier found cinchonine to be composed as follows : —

Carbon	76.97
Azote	9 02
Hydrogen	6 22
Oxygen	7.97
Cinchonine	100.18

QUININA.—(P. 74.)

CHEMICAL PROPERTIES OF QUININE.—(P. 80.)

MM. Dumas and Pelletier have succeeded in communicating to quinine a crystalline texture, by causing it to undergo igneous fusion *in vacuo*, and suffering it to cool in a slow manner. In this case, instead of preserving its resinous aspect and transparency, it contracts, becomes opaque, and forms at its surface centres of crystallization, which radiate on all sides, and produce a sort of mohair appearance: the fracture of the mass is crystalline.

Quinine, when melted, becomes idio-electric; and acquires the resinous electricity with much intensity when rubbed with a piece of cloth.

MM. Dumas and Pelletier have obtained for the mean composition of quinine the following results:—

Carbon	75.38
Azote	8.72
Hydrogen	6.15
Oxygen	9.85
Quinine	100.10

PROPERTIES OF THE SULPHATE OF QUININE. — (P. 81.)

The sulphate of quinine possesses a very remarkable property, observed for the first time by M. Callaud d'Annecy.

This salt, when exposed to the temperature of 100° (212° Fah.), becomes luminous, especially when subjected to slight friction. MM. Dumas and Pelletier exposed about two or three ounces Fr. of the sulphate, inclosed in a glass flask, which they kept in a sand-bath for half an hour, to the temperature of boiling water, when it exhibited, on friction, a tolerably intense, white light. On passing through the cork of the flask a metallic rod, ending in a point at the internal extremity and by a ball at the opposite one, and applying it to the ball of the rod of a Voltaic electroscope, shaking the flask before each contact, these gentlemen obtained the greatest separation of which the rods of the electroscope are susceptible: the electricity was always vitreous. The sulphate of cinchonine possesses the same phosphorescent property, but in a less degree, and the electric faculty in the same ratio.

VERATRINA.—(P. 90.)

CHEMICAL PROPERTIES OF VERATRINE.—(P. 94.)

MM. DUMAS and Pelletier have made three analyses of veratrine, obtained from the *veratrum sabadilla*. The results of these various analyses differed but little from each other :

Carbon	66.75
Azote	5.04
Hydrogen	8.54
Oxygen	19.60
Veratrine	99.93

ACIDUM HYDROCYANICUM.—(P. 102.)

CASES IN WHICH IT MAY BE PRESCRIBED. (P. 108.)

Dr. Frisch, Physician at Nyborg in Denmark, succeeded in relieving most excruciating pains, which had resisted every antispasmodic, and were occasioned by a cancer of the breast, by washing the surface of the cancerous ulcer with the diluted medicinal prussic acid. He has also employed this medicine usefully in several cases of phthisis.

MODE OF PRESCRIBING IT.—(P. 108.)

The *medicinal prussic acid* may be also formed by diluting the hydrocyanic acid with six times its volume of alcohol: in this manner it better preserves its active properties, and evaporates much less speedily than when mixed with water. It has recently been proposed to employ a more concentrated prussic acid; for example, one consisting of three parts of water, and one of acid: but it does not seem that this method can have any advantages over that which at the present day is generally adopted.

LIQUOR POTASSII CYANURETI. — (P. 114.)

Solution of pure Cyanuret of Potassium as a Succedaneum for the Prussic Acid.

The difference of the results obtained by those physicians who have employed the prussic acid, has been attributed to that medicine not being always alike, in consequence of its great volatility, and the facility with which its elements separate: but the slight modification, in the preparation of the medicinal hydrocyanic which has been proposed, will in a great measure remedy that inconvenience.

MM. Robiquet and Villermé have, however, conceived that cyanuret of potassium might be advantageously substituted for it, the effects of which on the animal economy are the same.

MODE OF PREPARATION.

The process recommended by M. Robiquet consists in exposing to long-continued heat the ferruginous prussiate of potass. Thus the cyanuret of iron is completely decomposed, and that of the potassium remains untouched. The residuum of this strong calcination constitutes a solid, blackish, lamellar mass, which consists entirely of the cyanuret of potassium, soiled by

the iron and the charcoal belonging to the cyanuret of iron. This mass is then dissolved in water: when the iron and charcoal are deposited, whilst the cyanuret of potassium dissolves, and is transformed into hydrocyanate of potass.

When the operation has been well conducted, the solution is perfectly colourless, and retains no portion of iron. The cyanuret of potassium, when well prepared, is very pure, white, and transparent: it may be melted on the fire without becoming disorganized, and keeps for an indefinite period, provided it be preserved from the contact of humidity.

ACTION OF THE CYANURET OF POTASSIUM, AND OF THE HYDROCYANATE OF POTASS, ON ANIMALS AND ON MAN.

MM. Robiquet and Villermé performed some experiments on animals, in the presence of M. Magendie.

The action of the cyanuret of potassium was such, that with a tenth of a grain (gr. .082 troy) of this salt, a cock-linnet was killed in the space of a minute: less than a grain (than gr. .82 troy) killed a guinea-pig in two or three minutes.

Of the hydrocyanate of potass, a small drop containing only the 100th part of a grain

(gr. .0082 troy) of the cyanuret in solution, caused a cock-linnet to drop down dead at the end of half a minute. A half drachm (gr. 29.5 troy) containing five grains (gr. 4.1 troy) of the cyanuret, killed a dog of large size in a quarter of an hour. The symptoms of poisoning were similar to those occasioned by the hydrocyanic acid. There has not hitherto been an opportunity of studying on man the symptoms occasioned by this substance.

MODE OF EMPLOYING IT.

The cyanuret of potassium should be dissolved in eight times its weight of distilled water, when it becomes transformed into hydrocyanate of potass. To the cyanuret mixed with water in this proportion, might be applied the name of the *medicinal hydrocyanate of potass*.

This hydrocyanate may thus be administered without danger in the same doses as the medicinal prussic acid, and may enter into the same preparations as those mentioned under that head.[a] It is, moreover, possible to render it wholly independent of the action of the small portion of alkali contained in the cyanuret, by adding a few drops of some vegetable acid, or by prescribing it with an acid syrup :

[a] *Formulary*, p. 108.

which would be also attended with the advantage of rendering the prussic acid *plus à nu*.

If the cyanuret of potassium be put into a mixture in place of the hydrocyanate of potass, it should be begun with in the dose of a quarter of a grain (gr. .205 troy), and gradually augmented to a grain (gr. .82 troy), a dose which has already been exceeded by some physicians.

ZINCI CYANURETUM.

Cyanuret of Zinc.

This cyanuret has been lately employed in Germany in place of the hydrocyanic acid. It has also been said to possess somewhat marked vermifuge properties. Until experience shall, however, confirm or negative these commendations, we shall give here the mode of preparation, which there is every reason to suppose has been followed in Germany, in order that some experiments may be made with it.

MODE OF PREPARATION.

We are yet ignorant of the precise process employed by the Germans for the preparation of the cyanuret of zinc. M. Pelletier has made

some researches for the purpose of obtaining this combination. The means which have succeeded with him, consist in precipitating the sulphate of zinc by the hydrocyanate of potass: a triple hydrocyanate of zinc is formed: this hydrocyanate, when well dried and calcined to a dark red, is converted into cyanuret of zinc. It is always mixed with cyanuret of potassium. M. Magendie thinks it probable that this is the preparation extolled by the Germans, but there is nothing to prove it directly.

MODE OF EMPLOYMENT.

The cyanuret of zinc may be employed in the same doses as the cyanuret of potassium. It should be commenced in the dose of a quarter of a grain (gr. .205 troy). This may be gradually increased to a grain and a half (gr. 1.23 troy), in a mixture to be taken by spoonfuls. These trials should, however, be carried on with much circumspection.

BRUCINA. — (P. 140.)

In the St. Ignatius's bean, and in the upas, brucine enjoys the same *rôle* as regards strychnine, which cinchonine does to quinine in the cinchonas: the most active cinchonas contain the most quinine, whilst St. Ignatius's bean and the upas, which are much more active than the nux vomica, contain little brucine and much strychnine. The strychnine is almost pure in the upas.

PROPERTIES OF BRUCINE. — (P. 141.)

Crystallized brucine is a true hydrate; its affinity for water is very considerable, whilst pure strychnine is not susceptible of passing into the state of a hydrate. Brucine loses by fusion a considerable quantity of water.

200 parts of brucine crystallized in water, yield of

Residuum	163 parts.
Water	37
	200

161 parts of brucine, crystallized in alcohol, yield of

Residuum	134 parts.
Water	27
	161

Which establishes for the constitution of the hydrate, taking the mean of these two results,

Brucine	100 parts.
Water	21.65

Two analyses of brucine, extracted from the false angustura, in the state of perfect purity, and melted *in vacuo*, have given as a medium composition.

Carbon	75.04
Azote	7.22
Hydrogen	6.52
Oxygen	11.21
Brucine	100

CASES IN WHICH BRUCINE MIGHT BE EMPLOYED. — (P. 143.)

M. Magendie has administered brucine with success in two cases of atrophy, the one of the arm and the other of the leg. The patients took in the day six pills, of an eighth of a grain each (gr. .102 troy).

M. Magendie has also added the following new remedies : —

OLEUM CROTONIS TIGLII—(P. 143.)

Oil of Croton.

This oil is obtained from the *croton tiglium*, a shrub of the family *euphorbiaceæ*, which grows in the East Indies. It is cultivated at Malabar, Ceylon, and the Moluccas, for the sake of its medicinal properties. Centuries ago (in 1630) the oil of croton was introduced into Europe, and was employed internally with success by several physicians. In 1632, Artus Gyselius extolled it in dropsy. In the *Herbarium Amboinense* of Rumphius, published at Amsterdam, in 1750, by Burmann, a description of the croton is contained; the seeds of which, says the author, yield on expression, an oil which, when taken in the dose of one drop in Canary wine, was at that time a common purgative. The medicine had, however, entirely fallen into neglect in Europe, when Dr. Conwell, a physician in the English East India Company's service at Madras, recalled attention to it. It is generally employed in India, and has been lately introduced into England.

MODE OF PREPARATION.

The mode of preparing the oil of croton is not known: it appears, however, to be commonly obtained by expression or boiling. Its preparation has not yet been attempted in France, from the difficulty experienced in procuring the seeds of the *croton tiglium*. On digesting in sulphuric ether 100 parts of the bruised kernels, placing the whole on a filter, carefully covered during the whole continuance of the filtration, and washing the residuum with a sufficient quantity of ether, Dr. Nimmo of Glasgow found that there remained forty parts, and that sixty had been dissolved.

By this process, from 300 grains of the seeds (from which 108 grains must be deducted for the envelope, when 192 grains of the kernels will remain) he obtained two drachms of an oil which had the taste and medicinal properties of the common oil of croton.

An alcoholic solution may also be prepared, either by pouring alcohol upon the seeds, or upon the oil itself: but Dr. Conwell does not indicate, in the thesis which he sustained at the Faculty of Paris, the proportions in which this solution, which enjoys the same properties as the oils, should be made: it seems that that which he prepared was much less active

than the oil, for he administered it in the dose of half a drachm. According to Dr. Nimmo, the activity of the oil of croton would seem to be owing to an acrid resinous principle, soluble in ether, alcohol, and the fixed and volatile oils. From the experiments of this physician, 100 parts of the kernels of the croton tiglium contain of

Acrid principle	27
Fixed oil	33
Farinaceous matter	40
	100

100 parts of the oil of croton contain

Acrid principle	45
Fixed oil	55
	100

MM. Vauquelin and Pelletier have made some experiments for the purpose of isolating the active principle of the oil of croton, but they have not succeeded in doing so.

ACTION OF THE OIL OF CROTON ON MAN AND ON ANIMALS.

The oil of croton is of an orange yellow colour, and of a marked smell, *sui generis*:

its taste is piquant, like that of cinnamon, and bears also a little resemblance to that of castor oil. When a drop is put upon the tongue, some moments afterwards a sensation of disagreeable heat is experienced, which extends as far as the fauces; this sensation continues for several minutes: in order to remove it, one or two spoonfuls of cold water should be taken; this should, however, be considered as an objection to the administration of the unmixed oil of croton. Dr. Conwell having sent me during the last year a certain quantity, I began to try its effects upon animals, when I found the oil to be purgative in an infinitely small dose, a drop or half a drop for example. In a larger quantity it became powerfully drastic, and occasioned violent inflammation of the intestinal canal, accompanied with repeated vomiting and purging.

When injected into the veins, it also excited, according to the dose, simple purgation, inflammation of the intestinal canal, or the death of the animals.

From these effects I did not hesitate to employ the oil of the croton tiglium as a medicine: I gave it at the Hôtel-Dieu at Paris to several patients, male and female, placed under my care, with very satisfactory results. One or two drops mixed with half an ounce of syrup purged mildly and copiously about fif-

teen patients, situated under different circumstances. The effects appeared so advantageous, that several pupils at the hospital desired to try the oil upon themselves, and several used it with advantage, and expressed their satisfaction at it.

I have several times employed in private practice the oil of the croton tiglium, and always without accidents.

Although I have not observed any inconvenience from it, I ought to say that Dr. Conwell has seen some individuals experience nausea and vomiting. When vomiting occurs, the purgative effect does not less take place.[d]

M. Conwell states, that the smell of the oil of croton several times respired over a bottle containing sixteen ounces, was sufficient to purge a young girl: but that an adult having made the same experiment, experienced only some nausea.

The effect of the oil of croton is very rapid, frequently supervening at the expiration of half an hour. Besides the alvine evacuations, the secretion of urine appears to be considerably augmented.

[d] In England the oil of croton has been repeatedly administered with advantage as a cathartic: it has, however, been observed in many cases to occasion those symptoms which M. Magendie remarks he has never witnessed. — R. D.

CASES IN WHICH IT MAY BE ADMINISTERED.

The oil of croton may be employed as a common purgative when there does not exist any irritation in the stomach or intestinal canal, and in old people under the same circumstances as veratrine: the oil should, however, be preferred, when the ordinary purgatives have been unsuccessfully administered, in apoplexies, and in dropsies, and, in short, where mechanical or other obstacles exist to the employment of a common medicine, and, particularly, where it is necessary that the effect should be rapid.

Doctor Ainslie, a physician at Madras, published, in 1813, in that town, a work on the materia medica, in which he recommends the external use of the oil of croton in rheumatic affections.

MODE OF EMPLOYMENT.

One, two, or three drops at the most, are commonly given in half an ounce of the syrup of gum arabic, or in any other syrup.

Dr. Conwell also recommends the employment of the following formula:

Take of

The alcoholic solution		½ drachm (gr. 29.5 troy).
Simple syrup,	aa	3iij. (dr. 2 : gr. 57 troy).
Mucilage of gum arabic.		

It has been already observed that Dr. Conwell has not indicated in what proportion the active principle entered into the alcoholic solution which he employed, so that it would be well, until we are better informed, to restrict ourselves to the use of the pure oil of croton: it is probable, however, that it was prepared by saturation.

This oil is also used for frictions round the umbilicus. According to Dr. Conwell, four drops applied in this way have produced a purgative effect. A slight eruption followed the employment of this method.

PIPERINA.

Piperine.

This substance was discovered in the black pepper[e] *(piper nigrum)* by M. Œrstaedt, who regarded it as a vegetable alkali.

M. Pelletier has since made an analysis of it, and proved that the piperine, the crystalline matter of the pepper, is not a vegetable alkali, but that it has a considerable analogy with the resins[f], and is of a peculiar nature.

This substance has lately been employed in Italy as a febrifuge. I have not yet been able to confirm, by my own experience, the properties which M. D. Meli[g] attributes to it. I shall, therefore, restrict myself to pointing out the process of which he makes use for obtaining the piperine, and the doses at which it may be employed, in order that new trials may be made of it.

[e] *Journal de Physique*, No. 2, 1820.

[f] *Examen Chimique du Poivre*, par J. Pelletier, 8vo Paris.

[g] *Annali Univers. di Medicina*, t. xxvii. p. 161, and t. xxviii. p. 22.

MODE OF PREPARATION.

Let two pounds (2 lbs. 7 dr. 4 gr. troy) of the black pepper, bruised, be digested, at a gentle heat, in three pounds (3 lb. 11 oz. 2 dr. troy) of alcohol, at 36° (.837). This must afterwards be raised to ebullition; suffered to rest and grow cold; when it must be decanted, and the operation repeated with fresh alcohol. The two solutions must be mixed, and two pounds (2 lbs. 7 dr. 4 gr. troy) of distilled water, and three ounces (2 oz. 7 dr. 37 gr. troy) of hydrochloric acid be added to them. The liquor becomes troubled, and a precipitate of a deep grey is thrown down, which is in a great measure composed of fatty matter. The deposit being separated, somewhat beautiful crystals may be collected on the filter and sides of the vessel: these are the piperine. On adding water until this liquid is no longer rendered turbid, a fresh quantity is obtained. This process is the same as that pointed out by M. Pelletier. In a *mémoire* published by this gentleman, he states that he had also obtained the crystalline matter of the pepper by the following method:—After having exhausted the pepper by alcohol, and evaporated the alcoholic tinctures, a fatty or resinous matter is obtained; this must be subjected to the action of boiling water, which

must be repeated until it passes off colourless. Then, by dissolving this fatty matter thus purified by washing in alcohol, by the aid of heat and leaving the solution to itself for some days, a multitude of crystals are obtained, which may be purified by solution in alcohol and ether, and by repeated crystallizations. The alcoholic mother waters, left to themselves, will afford fresh crystals. This crystalline matter is piperine.

The crystalline matter of the pepper presents itself under the form of prisms with four faces, two of which, parallel to each other, are evidently broader: the prism is terminated by an inclined surface. This substance is totally insoluble in cold water: boiling water dissolves a small quantity of it, which is precipitated on cooling.

It is very soluble in alcohol, less so in ether, and more so in hot than in cold.

M. Pelletier finds that piperine bears much analogy with the resin of cubebs; which M. Vauquelin compares with the balsam of copaiba: the piperine in cubebs, however, does not possess any crystalline property.

CASES IN WHICH PIPERINE MAY BE ADMINISTERED.

According to M. Meli, piperine enjoys the same febrifuge properties as the alkalies of the

cinchonas. At the hospital at Ravenna he has cured several cases of fevers with it, and he even goes so far as to affirm that its action is more certain than that of the sulphate of quinine. Piperine ought to be employed in a much smaller dose than the sulphate of quinine. Intermittent fevers are the only diseases in which it has as yet been employed. It might also be used in gonorrhœa in place of the cubebs. According to M. Meli, the acrid oil of the pepper enjoys the same febrifuge virtues as the piperine, but in a less degree. This is doubtless owing to its always retaining a certain quantity of the crystalline matter.

[JALAPINA.

Jalapine.

Mr. Hume, Junior, of Long-acre, is said to have discovered a vegeto-alkaline principle in jalap, to which he proposes to give the above name. Of its action, however, on man or on animals we know nothing: we must consequently wait until experiments have been instituted to that effect. The following is the manner in which he procured it.

MODE OF PREPARATION.

Coarsely powdered jalap is macerated fo twelve or fourteen days in strong aceti acid: a highly-coloured tincture is thu obtained, which, when filtered, is super saturated with ammonia, and the mixtur violently shaken: a sabulous deposit rapidl falls, and a few crystals form on the side of the vessel. The deposit and crystals ar collected and washed with distilled water, agai dissolved in a small quantity of concentrate acetic acid, and reprecipitated by ammoni added in excess, which throws down the jala pine in small, white, acicular crystals.

CHEMICAL PROPERTIES OF JALAPINE.

Jalapine is without any perceptible smell o taste, and seems to be heavier than morphina quinina, or other substances of this class; it i scarcely soluble in cold water, and only t a small extent in hot; ether has no effect upo it: alcohol is its proper solvent. Very littl trouble is requisite to purify jalapine fro extractive or colouring matter, for which i appears to have but a slight affinity.

Mr. Hume considers that an ounce of jala will, on careful treatment, afford about fiv grains of this substance.]

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THE END.

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